being still the subject of investigation as regards the exact antiquity (Tertiary period) claimed for the find.

It is a matter of some surprise that the department of Physical Anthropology should not have been the subject of more papers than were actually presented at Halle, which University claims the two Meckels and Welcker among its former professors of anatomy. The chief contributions to this subject were those of Dr. Schmidt-Monnard (Halle) on the relation between the growth and the weight of children of both sexes; of Dr. Eisler (Halle) on the *Musculus sternalis*; and of Prof. Klaatsch (Heidelberg) on the method of research adopted by anatomists, illustrated specifically by observations on the "short head" of the Biceps femoris muscle in the mammalian series.

The chief excursion of the Congress was made on Wednesday, September 26, to Eisleben, where the copper-mines already referred to were visited, and demonstrations of copper-smelting were given by representatives of the Mansfeld Co. Subsequently the local collection of prehistoric pottery, &c., was inspected.

The concluding session was held on September 27, when the presidency (for the ensuing year) was assumed by Prof. Waldeyer (Berlin). It is a matter of interest to note that the Congress was made the occasion of circulating "special inquiry" sheets regarding the structure and building of boats in all parts of Germany. General proposals regarding cartography and systematic records for provincial localities were brought forward by Dr. Voss (Berlin).

In addition to the anthropologists already mentioned in the foregoing notes, there were present Freiherr v. Andrian-Werburg (Vienna), Prof. Hein (Vienna), Prof. Montelius (Stockholm), Prof. Koganei (Tokio), and others to the number of about one hundred and twenty.

ANTHROPOLOGY AT THE BRITISH ASSOCIATION.

THE Section of Anthropology had a very successful session under the presidency of Prof. Rhys; indeed, it was one of the very best meetings of Section H in the history of the Association. Nearly every department of the subject was represented and that too by new and original contributions. It is interesting to note the different lines which members of the Universities of Oxford and Cambridge are at present taking up. The field of Classical Archæology is offering rich prizes to Arthur Evans, Hogarth, and Myres; while the expeditions of Hose, Stanley Gardiner, Haddon, Skeat, and others are providing material for a more complete knowledge of primitive peoples.

I.—PHYSICAL AND EXPERIMENTAL ANTHROPOLOGY.

(1) *Somatology.*

Dr. John Beddoe, in a short paper on the vagaries of the cephalic index, described two long-headed skulls which had the general characters of dolichocephaly, but the one that appeared the more typical had a latitudinal index (living) of 82·3, owing to retarded ossification of the posterior part of the temporo-parietal suture; but for this the author thought the index would not have exceeded 77. Prof. Macalister, as at the last meeting of the Association, deprecated the importance usually ascribed to the cephalic index.

Prof. A. Francis Dixon read a paper, entitled "On certain markings on the frontal part of the human cranium and their significance." An examination of the frontal region of the cranium shows that, in many cases, grooves or channels are present on the bone, corresponding to the branches of the supra-orbital nerves. Their presence indicates a want in proportion between the growth in length of the nerves and the amount of expansion of the underlying part of the cranium. The nerves might be looked upon as constricting cords which become depressed in the developing bone as the cranium expands. In races in whom the grooves are common, and strongly marked, we would expect the presence of a tendency towards increased development and capacity of the frontal part of the cranium; while, on the other hand, in races in whom the grooves do not occur, or are rare, and but feebly marked, we would expect to find much uniformity in the shape and size of the cranium, indicating that none of its various parts are tending towards an increased development. In this connection it is interesting to note that the frontal grooves are almost never found in Australian and Tasmanian skulls, that they are rare among Melanesians, slightly more common among Polynesians, while among Bushmen and negroes, especially in Zulus and Kaffirs, they are very common, and often extraordinarily well marked.

Mr. W. L. H. Duckworth described nine crania collected by Mr. J. Stanley Gardiner in his expedition to Rotuma. As might have been expected from the position of the island, the skulls could be resolved into two types, one of the form of cranium usually found among Polynesian peoples, though possessing something of a Mongolian aspect; the other was of distinctly Melanesian affinities. The paper was well illustrated with lantern slides.

A second paper by Mr. Duckworth was on some anthropological observations of the Pangan tribe of aborigines in the Malay Peninsula made by Mr. J. Laidlaw in the Skeat Expedition. Mr. Duckworth measured one adult male skeleton the stature of which was about five feet, which is the average height of the men measured by Mr. Laidlaw. The latter describes the people as having a skin colour of varying shades of dark brown, and the black hair is in some cases frizzly and in others more or less curly or wavy. Mr. Duckworth regarded the skull as of a negroid type with infantile characteristics. It is probable that the skeleton in question belonged to a half-breed Negritto and Malayan individual.

The developmental changes in the human skeleton from the point of view of anthropology were described by Dr. David Waterson. A comparison was instituted between the bones of the embryo and those of the lower races of mankind and of the higher apes, both as regards their relative length and their characters. As it has been shown that the curvature of the spine in the lumbar region is a post-natal development, and one adapted to the assumption of the erect attitude by the infant, it can also be shown that in a similar way the configuration of the bones of the lower extremity alters after birth, before the infant can stand erect.

Prof. A. Macalister discoursed on perforate humeri from ancient Egyptian skeletons. In examining those from Libyan graves, he was struck with the large number of humeri which had a supra-articular perforation, the proportion of such among these old Egyptian remains being much greater than among other races. He found that these perforations reached 57 per cent. among the ancient Egyptians, whereas among average English people they ranged about 3 per cent., and 10 per cent. among Neolithic skeletons, while the percentage rose to 53 in the skeletons of Indians from Arizona.

A paper on the sacral index was read for Prof. D. J. Cunningham. Inasmuch as the true length of the sacral portion of the vertebral column is not indicated by the shortest distance between the apex and base of the sacrum, but rather by the length of the curve formed by the sacral vertebræ, it is proposed that, in making measurements for the determination of a sacral index, "length" should be measured by using a tape along the concavity of the sacral curve, and not by calipers, one limb of which is placed upon the base and the other on the apex of the sacrum. Breadth (measured by calipers in the ordinary manner) multiplied by 100 and divided by length, measured in the manner indicated, gives the true sacral index. The curvature of the sacrum may be conveniently plotted by taking a tracing from a strip of soft metal which has been previously adapted by pressure to the front of the sacrum along its middle line. The index of curvature may be expressed by the number derived by multiplying the height of this plotted curve by 100 and dividing by the number corresponding to the true length of the sacrum.

Dr. Cunningham communicated a second paper on the microcephalic brain, which also was read by Dr. Dixon, and illustrated with a large number of lantern slides. The brain of the microcephalic idiot may exhibit features which do not merely represent a "fixed" embryonic condition. In one specimen the arrangement of the fissures and sulci is found to approach more closely the ape than the human type, and in almost every furrow some simian character can be detected. These simian characters must not be considered mere fœtal conditions rendered permanent. The ape-like condition existing in this brain does not as a whole correspond to that of any one ape, or group of apes, but there is a complicated mixture of features some of which are characteristic of high apes, while others find a parallel in the brain of low apes. The microcephalic brain may be regarded as a partial "atavism." So far as its surface markings are concerned, the specimen noted has reverted in part, or wholly, to an arrangement which, in all probability, existed in some early stem-form of man

Dr. J. G. Garson read a paper, with lantern illustrations, on a system of classification of finger-prints.

(2) *Psychology.*

Prof. G. J. Stokes read a paper on the sense of effort and the perception of force, and Prof. Marcus Hartog contributed another on interpolation in memory. In the discussion on the latter paper, Prof. Lloyd Morgan contended that psychologists had not so completely overlooked the practical perceptual judgment as Prof. Hartog seemed to suppose.

Mr. E. W. Brabrook presented the final report of a committee which has been acting in conjunction with the Childhood Society for the scientific study of the mental and physical conditions of children.

II.—ETHNOLOGY.

(1) *Sociology.*

Mr. E. S. Hartland read a paper that attracted a good deal of attention, on the imperfection of our knowledge of the black races of the Transvaal and Orange River Colonies.

(2) *Technology.*

Dr. A. C. Haddon read a paper, illustrated by lantern slides and specimens, on the textile patterns of the Sea-Dayaks. The Sea-Dayak women weave short cotton rep petticoats and cotton sleeping wraps which are covered with beautiful and often intricate patterns. The patterns are made in the following manner: the warp is stretched on a frame, the woman takes the first fifteen to thirty strands and ties them tightly with strips of leaves at irregular intervals, according to the design, which she carries in her memory. The next fifteen to thirty strands are similarly tied, and this process is repeated until all the threads have been utilised. The warp is then removed from the frame and dipped in a reddish dye, which colours the free portions of the warp, but the tied-up portions remain undyed; thus a light pattern is left on a coloured background, when the lashing is untied. If a three-colour design is required, as is usually the case, the first lashing is retained, and various portions of the previously dyed warp are tied up; the whole is immersed in a black dye, and then both sets of lashing are untied. The pattern is thus entirely produced in the warp. By far the greater number of these designs are based upon animals, whereas most of the patterns carved by the men on wooden and bamboo objects are derived from plant motives. The decorative art of the Sea-Dayaks of Sarawak differs in character from that of the Kayans, Kenyahs, and other inland tribes.

A paper was read by Mr. W. Rosenhain on the making of a Malay "Kris." This, it was explained, was a species of native sword, and the paper dealt with some specimens of Malay metal work which had been submitted to the writer for microscopic and other examination by Mr. W. W. Skeat. By means of many lantern views Mr. Rosenhain exhibited samples of this kind of weapon, showing especially the "damask" pattern of the "Kris." Swords of this description were composed of many strands of two kinds of metal. The body of the blade was made of steel, a layer of laminated "damask" iron was welded upon each side of the central layer. A thin layer of steel was then welded on, outside the "damask" iron The author was of opinion that the striated "damask" effect was due to the opening of the loose welds in the "damask" iron during the forging of the blade, steel being driven between the laminæ. The outside layer of steel was entirely ground away during the process, and when the compound surface so produced was "etched" by the pickling process employed, the more readily corroded steel was attacked, leaving the edges of the layers of iron as a series of narrow projecting ledges. The tools of the Malay goldsmith were then carefully described, and subsequently a description was given of the micro-structure and composition of Malay bronzes. The concluding part of the paper dealt with the Malay method of producing chains by casting, a practical illustration of the method being given by Mr. Rosenhain on the platform.

Prof. Macalister said that the older Universities of this country were frequently reproached for not doing anything practical. He felt, however, that Mr. Rosenhain had that afternoon removed a great deal of that reproach by practically demonstrating for them the process of casting metal chains practised by the Malays.

Prof. H. Louis read a "Note" on the "Kingfisher" type of a Malay "Kris," which was illustrated by specimens.

This was a type of "Kris" used only in a very limited area in the north-east of the Malay Peninsula; it was, however, rare even in its own home. The Malay legend of its origin, he remarked, was that a party of Malays from the Bugis Islands invaded that portion of the Peninsula many centuries ago. One of their leaders was known as "the Kingfisher"—presumably on account of his rapid movements. The invasion was successful, but the leader fell in one of the last engagements, and after his death his followers carved their Kris handles into shapes resembling the Kingfisher's head and beak. Under Chinese influence the pattern became more and more ornate, being modified by the Chinese "Dragon," until it reached the present fixed type.

Dr. Haddon gave an afternoon lantern demonstration on the houses and family life in Sarawak. He exhibited a series of about fifty lantern slides of photographs taken during his recent expedition to Sarawak, selected to illustrate the type of houses common among the settled inland tribes of Borneo and the everyday life of the people.

Mr. W. Law Bros delivered an afternoon lantern lecture on some Indian monuments, illustrated by numerous beautiful slides taken by himself.

A paper, with lantern illustrations, on permanent artificial skin marks was read by Mr. H. Ling Roth. Whatever might have been the original idea, ultimately its objective became manifold. Mr. Ling Roth described four systems or methods of tattooing. The Tahitian method of "tattaow" was performed by pricking or tapping with pigment, and produced the smooth result such as was seen in our soldiers and sailors. The Maoris of New Zealand adopted this pricking method, and also a cutting method performed with a sharp, adze-like edge like a narrow chisel. This produced slight but permanent grooves in the skin. The third method was that adopted in West Africa, and was similar to the second, but the grooves produced were deeper and wider, and generally no pigment was used. Lastly, there were the curious raised marks of the Tasmanians, Australians and Melanesians generally, and the Central African tribes. In this case the cuts were made with sharp edged stones, and were continually reopened or irritated by the insertion of vegetable juices or sand. Hence was produced an abnormal amount of reparative action, and the wounds did not heal naturally as healthy concave scars, but developed into nodulous growths of sometimes considerable size. For these four methods Mr. Ling Roth suggested a nomenclature—namely, tatu, moko, cicatrix and keloid.

Mr. Davis read a paper on the system of writing in ancient Egypt for Mr. F. Ll. Griffith, and whilst doing so illustrated his remarks with very clever sketches on the blackboard. Egyptology has now reached a position among the sciences from which it may contribute trustworthy information for the benefit of kindred researches. Egyptian writing consists of Ideographic and Phonetic Elements, the signs serving as:—(1) Word-signs; (2) Phonograms; (3) Determinatives. The highest development shown is an alphabet, which, however, is never used independently of other signs: it is apparently not acrophonic in origin; it represents consonants and semiconsonants only, vocalisation not being recorded by Egyptian writing. No advance can be detected in the system from the beginning of the historic period to the end, notwithstanding some improvements in practical working which facilitated the use of cursive writing. Phonograms derived from word-signs. The end of the native system was brought about by the gradual adoption of the Greek character—beginning, perhaps, in the second century A.D. If any radical improvement was ever made in the Egyptian form of writing, that improvement must have taken place at or after adoption by another people: *e.g.* some have supposed that our alphabet was derived by the Phœnicians from Egypt; but any such derivations are at present entirely hypothetical.

A paper was read by Mr. Arthur J. Evans on the new scripts he has recently discovered in Crete; an account of his researches has already appeared in NATURE (p. 526).

(3) *Religion.*

Some peculiar features of the animal-cults of the natives of Sarawak, and their bearing on the problems of totemism, were discussed in a paper by Dr. C. Hose and W. McDougall.

Customs had previously been observed that seemed to indicate the existence of a well-developed totemism, either at the present time or in recent times, among the natives of Sarawak. Information bearing on this subject was therefore collected as diligently as possible from various tribes.

A great number and variety of peculiar rites and customs were found to be observed by the people of the different tribes in their dealings with animals and plants. This paper was confined to giving (1) a general account of the customs of one of the inland tribes, the Kenyahs; (2) to describing the "Nyarong," or spirit-helper of the Sea-Dayaks, and some similar institutions among the other tribes; and (3) to pointing out the bearing of our observations on the totem problem.

The Kenyahs are a warlike, agricultural people living as isolated communities of twenty to fifty or more families, each community inhabiting a single long house built on the river-bank. Their religion is peculiar, in that they believe in a beneficent Supreme Being and a group of departmental deities, while they attribute to every agent that affects their lives a spirit that must be properly respected and, if necessary, propitiated. Most important to them of all the animals is the common white-headed hawk. He brings messages of warning and advice from the Supreme Being to those who know how to read the signs he gives, and he is consulted before every undertaking of importance, and sacrifices of fowls and pigs are made to him. A wooden image of the hawk stands before every house. Several other birds give them omens of lesser importance, and none of these may be killed or eaten. The domestic fowl is killed as a sacrifice to the hawk or other powers, and its blood is sprinkled on the altar-posts of the gods and on the persons taking part in various ceremonies, especially peace-making ceremonies. The domestic pig is sacrificed in much the same way. The spirit of a pig is always charged with some prayer to be carried to the Supreme Being, and the answer is read from the markings of its liver. The crocodiles are regarded as a friendly and allied tribe, and may be killed in retaliation only. No Kenyah will kill a dog, and the dead body of a dog is regarded with fear. Kenyahs will not eat the flesh of deer or horned cattle, and there are many restrictions on touching or using any parts of them Only old or renowned warriors will wear or touch the skin of a tiger. One house is decorated with carvings of the gibbon on every large beam, and all Kenyahs have a dread of the Maias and the long-nosed monkey. There thus seems to be every degree of regard paid to the different beasts, from the mere uneasy feeling in the presence of the uncanny, long-nosed monkey to the elaborate cult of the hawk, and the nature of the respect paid to any species seems in nearly every case to be the direct expression of the impression made on the barbarian's mind by the behaviour of the beasts.

The Spirit-Helper.—Every Sea-Dayak hopes to be guided and helped all through his life by a spirit which announces itself to him in dreams and takes up its abode in some peculiar natural object or in some animal. In the latter case the Dayak will never kill or eat one of the same species of animal, and will lay the same prohibition on all his descendants, so that a whole family may come to pay especial regard to one species of animal for many generations. A similar institution occurs, though less commonly, among the other tribes. In such cases we seem to be able to trace sometimes the actual origin and growth of a totem; but neither among the Sea-Dayaks, nor the inland tribes of Sarawak, could the people be said to be in a totemistic stage of culture, nor was there sufficient evidence of an earlier totemistic cult. Mr. Hartland complimented the author on his caution and carefulness. He agreed with Dr. McDougall in regarding these animal cults as affording little proof of totemism as a stage in social or religious custom.

Dr. E. B. Tylor read a paper, by Mr. W. G. Aston, on the Japanese *gohei* and the Ainu *inao.*" The leading idea of the paper was the illustration of the principle in religious development by which an object which was in the first instance simply an offering to a god has in the lapse of time been conceived as the embodiment of the god, or even as a distinct and independent deity. In ancient Japan the offerings to the gods were hemp and bark fibre, with cloth made from these materials. In later times there was substituted a small quantity of paper made of the same bark material and attached to a wand in the form known to us as the *gohei*. With the change of form the original character of the *gohei* as offerings was forgotten. They were looked upon as receptacles of the god, or embodiments of him, and honour was paid to them accordingly. At festivals it was supposed that the god descended into the *gohei* on a certain formula being pronounced by the priest. Hypnotic practitioners also used these objects, through which the deity who inspired them was supposed to enter their bodies. In other cases the devotees went further, and constituted the object which was originally an offering into a distinct and independent deity. The Ainus of Yezo use in their worship whittled sticks called *indo*, which have a general resemblance to an old form of the *gohei*, and are doubtless a cheaper substitute. The *inao*, like the *gohei*, are primarily offerings, but in some cases they ultimately gain direct worship as gods, having become, in short, genuine fetishes. Another link between the *inao* and the *gohei* is found in certain whittled sticks which a century ago were in use in Northern Japan for striking women with, as at the Roman *Lupercalia*, in order to secure fertility. Similar sticks, after consecration by the Shinto priests, were formerly used at Kiota to kindle the household fire at the new year to avert possible pestilence.

Mr. David Boyle, curator of the Toronto Museum, read a paper on the paganism of the civilised Iroquois of Ontario. Notwithstanding the contact of the Iroquois, or Six Nation Indians, with white people for more than three hundred years, a very considerable number of the former have retained many of their old-time beliefs with the appropriate ceremonies. Of four thousand Caniengas (Mohawks), Senecas, Cayugas, Onondagas, Oneidas and Tuscaroras now residing in the Grand River Reserve, within sixty miles of Toronto, Ontario, fully one-fourth continue to observe the ancient feasts or dances connected with the growth and ingathering of corn and fruits, and for desired changes in the weather, as well as for the curing of disease. Some modification in the ceremonies was made about a century ago by an Onondaga named Ska-ne-o-dy-o, who announced himself as a prophet who had paid a visit to the abode of the Great Spirit. The changes introduced by him, however, have not by any means removed the pagan character of the native beliefs, although he certainly did attempt to imitate some Christian observances. Still the addresses of the medicine-men retain most of the old-time forms, although their significance in many cases is lost and even the meaning of numerous words is no longer known. The leading idea of the present form of worship is that of a great spirit; but this has been acquired from missionary sources, and although the Indians have adopted the idea of a heaven, they do not believe in any hell. The quoted examples of petitions addressed to Rawen Niyoh, the Creator, illustrated the lack of assimilation of the old and new forms. One of the most characteristic ceremonies connected with the Iroquois paganism is that of the sacrifice or burning of the White Dog at the new year feast during the February moon, when the spirit of the dog, accompanied by offerings of tobacco, conveys to *Niyoh* information respecting the condition of his "own people" on the Grand River Reserve.

III.—ETHNOGRAPHY.

The Anthropology of West Yorkshire was the subject of a communication by the venerable Dr. John Beddoe. He remarked that the most striking qualities of typical Englishmen had been thought to be strongly developed in Yorkshire. Among these, he feared, was the defect of imagination so often found in those who called themselves, with some pride, practical men. Such men entertained a positive dislike, and even contempt, for knowledge of which they did not see the immediate use. This character was not British, Celtic, or Welsh.

Dr. Beddoe's impression, acquired by simple inspection, is that in the central parts of the West Riding, and notably at Leeds, a prevailing type is characterised by an oblong, or rather trapezoidal, head, inclining to be broad rather than narrow, with a vertical forehead, smooth and not prominent brows, and a straight profile, with a straight or sometimes concave nose. The smooth brows dissociated this type from that of the Bronze race and the squareness from the smoothly elliptic or oval one of the Southern Saxon. He was inclined to call it Anglian. Light hair was prevalent hereabouts, and also in the mountainous regions to the north and south.

On the whole, he thought the eastern and central regions of Yorkshire, judging by physique, less purely Teutonic than Teesdale or the Wapentake of Morley, though more so than Craven.

The author discussed the question whether any considerable British or pre-Anglian element remained in the country around Bradford. Without coming to any positive conclusion, he was disposed to consider the inhabitants of these parts as mainly Anglian in type. More British blood remained further north, in Craven. A prevalent type about Leeds seemed to him to resemble the Burgundian Belair type of His and Rütimeyer.

Mr. J. Gray read a paper on physical characteristics of the population of West Aberdeenshire from observations made and statistics compiled by himself and Mr. J. F. Tocher. These observations, he said, were made at a Louach gathering in Strathdon, an isolated district lying right at the head of the Don Valley, with the principal object of ascertaining if any difference existed between the people in the upper ends of the river valleys and those on the eastern seaboard. It was reasonable to conclude, from the anthropological statistics compiled, that in Aberdeenshire at some distant date an early, tall, broad-headed, dark-haired and blue-eyed people, descendants of men of the Bronze age, who had perhaps come from South-east Europe, had been driven inland to the upper ends of the valleys and hills by later immigrants from North Germany who were shorter, had narrower heads, and were of a blonde type.

Mr. J. L. Myres then read a communication from Mr. D. Randall-MacIver on the present state of our knowledge of the modern population of Egypt, in which it was pointed out that whereas we had from statues and paintings, and especially from the skeletons found in recent excavations, a very fair idea of the composition and changes in the ancient population of Egypt, the interpretation of that evidence and of the problems in Egyptian history which it might be expected to solve was seriously hampered by the absence of corresponding evidence in regard to the modern population.

The Committee for the Ethnological Survey of Canada continue its most useful and necessary work, the report presented at this meeting being of exceptional value. The work of the past year has furnished conspicuous evidence of the great importance of securing ethnological data with as little delay as possible. While this is eminently true with respect to the white population, which is experiencing new and marked changes almost every year, in consequence of the introduction of foreign elements, often in large numbers, it is more particularly true with respect to the native Indian population. In many localities the original blood has become so diluted by intermarriage with whites that it is often a matter of great difficulty to find an Indian of pure blood. Proximity to settlements of white people has resulted in a more or less profound impress upon the social life and tribal customs, which are fast becoming obsolete and forgotten. The old chiefs who have served as the repertories of traditional knowledge are rapidly passing away, and with their death there disappears the last possibility of securing reliable data of the greatest value. Conspicuous instances of this kind have been brought to notice during the past year, especially in the case of the British Columbia Indians, whose ethnology is of the greatest interest and importance in consequence of their possible connection with the people of Eastern Asia. At present the great difficulty of securing competent and willing investigators is one of the most serious obstacles to be contended with, and it is believed that the often considerable expense involved in the prosecution of such work is largely accountable for this condition of affairs.

It is gratifying to note that the Department of Education for Ontario has taken a very practical and active interest in ethnological studies in that province, and that it provides for the publication of the results of research in its annual reports. Evidence has latterly been accumulating to indicate the presence at one time of numerous aboriginal settlements in localities which were very sparsely inhabited when first visited by the white explorers.

The committee appointed to carry out investigations on the natural history and ethnography of the Malay Peninsula presented their report, which had been drawn up by Mr. W. W. Skeat, the leader of the expedition.

The expedition itself was composed of members of the Universities of Oxford and Cambridge. The objects of the expedition were to carry out a scientific survey, in which ethnology, zoology, botany and geology should be included, of the little known Malay provinces of Lower Siam. The report stated that some very curious racial problems were found in the district arising out of the fusion of two antagonistic race elements. The most interesting problems were found in connection with the very primitive jungle tribes of the interior, concerning which much valuable information was obtained. The inhabitants were found to be for the most part Malay, who had become subject to Siamese influence. One little known tribe—the sacred tribe of the Prams—claimed to have come from India, and to have established themselves in the country previous to the coming of the Malays. The expedition was successful in obtaining a copy of their sacred book, from which it is believed an account of the origin of the tribe may be obtained. One small jungle tribe of Pangans was heard of, but though a forced march was made to reach them, the wild men had heard of the approach of the expedition, and had taken flight. Their late dwelling-place, a cave under a projecting rock, was photographed, as also were the very curious "tree-graves" used by the Siamese. This "tree-grave" burial, however, was now condemned by the Bankok authorities, and would become extinct before long The most interesting of Malay industries observed was the manufacture of damasked "krisses." Near the head-waters of the Muda a tribe of from twenty to thirty individuals was found living in a long barrack-like shelter of palm leaves. From them and from a neighbouring tribe valuable information as to their manners, customs and language, as well as full measurements of a few individuals, and some probably unique phonographic records of their songs, had been obtained, which were of an extremely simple and primitive character. It was found also that many of the leading Malay industries were being rapidly modified by the introduction of European methods and appliances, and it was now the rarest and most difficult thing to obtain cloth actually made of home-spun thread, the use of Singapore silk and aniline dyes being already the fashion everywhere.

IV.—ARCHÆOLOGY.

Mr. A. M. Bell then contributed a paper on the occurrence of flint implements of palæolithic type on an old land-surface in Oxfordshire, near Wolvercote and Pear-tree Hill, together with a few implements of various plateau types. He stated that a large section of the quaternary river-gravel there produced the usual fauna and many fine implements of human workmanship. This gravel cut into and was therefore newer than a previous land-surface, a portion of which was found at Wolvercote and another within half a mile at Pear-tree Hill. In both places flint instruments of palæolithic type, together with bulbed flakes and a few implements of plateau-type had been found. In every case these flints were vitreous, a point which distinguished them from those belonging to the river-gravels at Wolvercote. The older surface has been previously described as Northern Drift. Mr. Bell said he supposed it to be a *remaniement*—*i.e.* a re-handling or working over of the true Northern Drift, but deposited under semi-frozen conditions. It must be anterior to the river-valley, and consequently its relics of man were the oldest as yet obtained from the Thames valley. The drift in question most resembles the drifts of Caddington described by Mr. G. Worthington Smith and some sections on the Lower Greensand near Limpsfield, both of which are implementiferous, and the author would correlate the Wolvercote and Pear-tree Hill surface with these drifts.

A paper by Mr. J. Paxton Moir on stone implements of the natives of Tasmania, was read by Prof. E. B. Tylor. Examples of tools prepared with the help of grinding, and furnished with handles, were very rare, and were evidently of Australian origin. The Tasmanian implements were variously used—as, for example, by the women to cut notches in the bark of trees as an assistance in climbing; in the making of the Tasmanian spear, by scraping it straight and smooth; in grooving the handle of the Tasmanian club; and in sawing bones.

Prof. Tylor then proceeded further to add his own views on the Stone age in Tasmania as related to the history of civilisation. Inasmuch as the stage of civilisation attained by any people was of necessity closely associated with the nature of the implements in their possession, we might fairly assume that the development and habits of Europeans of the earliest authentic Stone age were essentially similar to those of the Tasmanians. What then, could we infer as to the earliest human races—the earliest, that is, after we had crossed the great gulf of the unknown which, on the evolutionary hypothesis, existed between the animal and the man? We found, taking the Tasmanians as representative of the earliest grade of society, that these people had no bows and arrows or throwing stones, but they had spears and clubs. They had houses and boats, but of the rudest imaginable type. They knew of fire, and could make it by the fire stick. With their stone implements they prepared and utilised the skins of animals. They made basket-work—in fact, the basket-weaving art had not substantially advanced from the earliest ages of which we had any knowledge until the present. They had a mythology, with a Greek-like legend, as to the origin of fire; and lastly, they had religious ideas, lower and ruder than those of the North American Indians, but on substantially the same lines. This circumstance—that the Tasmanian natives represent the most ancient known beginnings of human civilisation, while at the same time they were so recently a real, living and known people—rendered all knowledge which could be acquired concerning them a contribution of priceless value to the history of mankind.

Mr. H. Ling Roth said that some eighteen months ago he had received from a Yorkshire gentleman, Mr. J. Backhouse Walker, an account given by an old Australian settler, who in his youth had come across a group of black fellows whilst they were actually engaged in making these stones. The first process was simply to split them by hurling them violently on the rocky ground, and some stones were at once used in this rough shape for cutting up kangaroo meat, whilst other stones were prepared by chipping. At one period, doubtless the Tasmanians covered the whole of Australia; and they were subsequently almost swept away—only scattered representatives being left in small areas—by another race.

Dr. A. C. Haddon made a communication on relics of the Stone age of Borneo (illustrated by lantern slides and specimens) Dr. C. Hose, the Resident of the Baram District of Sarawak, obtained numerous examples of stone implements from various interior tribes in his district; these he has generously presented to the University of Cambridge. The implements are made of various rocks, including fibrolite, impure sandstone, arkose, silicified limestone, shale, andesite and chalcedony. The form, too, varies greatly; some are obviously axe heads, others adze blades, while certain cylindrical forms, with a more or less cup-shaped cutting end, were probably used to extract the pith from the sago palm. In the collection are several stones of irregular form; the former use of some of them is problematical, but they have recently been used as touchstones. The natives have a high regard for these stone implements, which have in their eyes a sacred character, and it is very difficult to persuade their owners to part with them. In all cases fowls had to be sacrificed to appease the spirits. The implements are stored with other sacred objects, and most of them are believed to be teeth, or toe-nails, of Baling Go, the Thunder God.

Mr. Butler Wood read a paper, with a map illustration, on the Prehistoric Antiquities of Rumbald's Moor, between Bradford and Ilkley. The stone implements found there, he said, consisted of axe-heads, arrow-heads, awls, spear-heads, knives and scrapers. Several fine specimens were exhibited. Baskets full of flint chippings scattered about in a very limited area seemed to prove that it was a place of fabrication of flint instruments, for flint *in situ* was not found within fifty miles. About half a dozen bronze axe-heads had been found at lower elevations. So far as evidences of interment went, the barrows were unsatisfactory. There was a double stone circle within four miles of Bradford Town-hall containing in the centre a boulder with a cup and ring mark on it. He hoped the Corporation of Bradford would not permit it to continue neglected, but would preserve it as a valuable specimen of antiquity. Mr. Wood also briefly mentioned the earthworks and the so-called pit dwellings which seemed to have been attempted excavations for iron. Springs of water were always found near these excavations.

Dr. Haddon emphasised Mr. Wood's observation as to the necessity for the preservation of local antiquities. It was the duty of the section to bring to the notice of local authorities the fact of the existence of valuable archæological remains in the district, and he hoped the Press would help him to insist upon the fact that it was the duty of all the local authorities to preserve their antiquities as well and as long as possible. It had been observed by Mr. Wood that if steps were not taken the double stone circle would soon be worn away and disappear owing to pedestrians walking recklessly over and about it; and he hoped that as a result of this paper and of the feeling expressed by the section, the proper authorities would take such steps as would effectually preserve this ancient stone structure. He also thought it a pity that the three Saxon crosses at Ilkley were not placed inside the parish church, and the cup and ring markings on boulders preserved at Ilkley would be better protected if a light shed was erected over them.

An excellent paper by Mrs. Armitage on some Yorkshire earthworks describes a particular kind of earthwork, very common in Yorkshire and in other parts of England, consisting of a moated hillock with a banked and moated court attached. This type of fort has been attributed in turn to the Britons, Romans, Saxons and Danes, with equal improbability. The theory most general at present is that it is Saxon. But Saxon strongholds were built to shelter all the people of the neighbourhood, and were therefore of large area, while these earthworks are evidently intended to protect some individual chieftain and his personal following, as is shown by their small area. There is positive evidence that the Normans built earthworks of this kind in the eleventh century as the bases of wooden castles, and these moated hillocks are still very numerous in Normandy. They are called *mottes* in Norman-French, and this word is found in various parts of England in the form *mote*. An inquiry into the castles known to have been built by the Normans when they first came to England shows that almost all these castles had mottes, while the *burhs* or *boroughs* built by the Saxons never have these appendages, unless a Norman castle builder has been at work there. The recognition of the Norman origin of these castles would help to solve an historical puzzle—how the Normans were able to hold England down. It was by a system of small fortified posts scattered all over the country that the action of the central machinery was carried into the remotest parts of the kingdom.

Mr. D. G. Hogarth read a paper on the cave of Psychró in Crete, which was copiously illustrated by excellent lantern slides. It has been known for some years that a large cave above the village of Psychró, in the Lasithi district of Crete, was a repository of primitive votive objects in bronze, terra-cotta, &c. As this cave is situated in the eastern flank of the mountain which dominates the site of ancient Lyttos, and is the only important cave known in the neighbourhood, it was conjectured that it was the Lyttian grotto connected with the story of the infancy of Zeus in the legend, whose earliest version is preserved by Hesiod. A thorough exploration of it has served fully to confirm this view. The cave is double. A rude altar was discovered in the middle of the upper grotto, surrounded by many strata of ashes, pottery and other refuse, among which many votive objects in bronze, terra-cotta, iron and bone were found, together with fragments of some thirty libation tables in stone, and an immense number of earthenware cups used for depositing offerings. The lowest part of the Upper Grotto was found to be enclosed by a wall partly of rude Cyclopean character, and partly rock-cut; and within this Temenos the untouched strata of deposit ranged from the early Mycenæan age up to the Geometric period of the ninth century B.C. or thereabout. Only very slight traces were found of later offerings. The earliest votive stratum belongs to the latest period of the pre-Mycenæan age, that marked by the transition between the "Kamáraes" fabric of pottery and the earliest Mycenæan lustre-painted ware. But below all is a thick bed of yellow clay, containing scraps of primitive hand-burnished black and brown pottery, mixed with bones of animals. This bed seems to be water-laid, and to be prior to the use of the cave as a sanctuary.

The southern or Lower Grotto falls steeply for some 200 feet to a subterranean pool, out of which rises a forest of stalactite pillars. Traces of a rock-cut stairway remain. In the chinks in the lowest stalactite pillars, a great many of which were found still to contain toy double axes, knife-blades, needles, and other objects in bronze, placed there by dedicators, as in niches. The knife-blades and *simulacra* of weapons are probably the offerings of men; the needles and depilatory tweezers of women. The frequent occurrence of the double axe, not only in bronze, but moulded or painted on pottery, found in the cave, leaves no doubt that its patron god was the "Carian" Zeus of *Labranda*, or the *Labyrinth*, with whom perhaps his mother, the Nature goddess, was associated, and the statuettes probably represent the two deities. Here was the primitive scene of their legend, afterwards transferred in classical times to a cave on Mount Ida.

Mr. Arthur J. Evans remarked that the cave was one of the most ancient shrines of the classical world bound up with the earliest cult of Zeus. Mr. J. L. Myres suggested that the eras of Cretan civilisation covered by the objects found in the cave might go back, at furthest, to the twelfth Egyptian dynasty, and extend down to the eighteenth dynasty.

A report of the committee appointed to co-operate with the Silchester Excavation Fund Committee was read by Mr. E. W Brabrook.